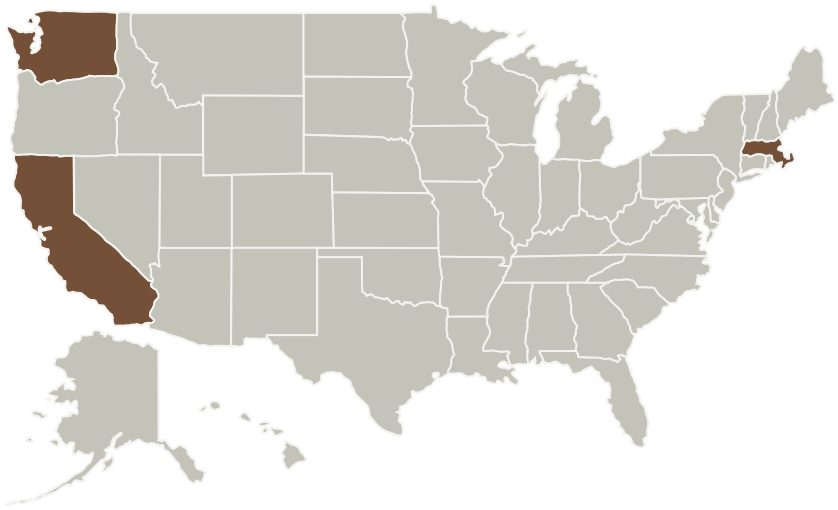
Autonomous Moisture Continuum Sensing Network

Completed Technology Project (2017 - 2019)

Project Introduction

We propose new technology concepts and advancements to aid in our understanding of the effects of Climate Change on Biodiversity. This proposal is targeted towards the current AIST "Operational Technologies" core topics along with a focus on the "Climate Change and Biodiversity" Special Subtopics. Specifically, this proposal seeks to (1) develop wireless in situ observations networks and associated technologies to monitor the vertical flow and distribution of water along the soil, vegetation, and atmosphere continuum, (2) develop autonomous and event-driven network decision-making strategies based on ecohydrological understandings. Outcomes of this proposal will help interlink plant-level to field-level hydrological processes. Furthermore, immediate application to and support of ground calibration and validation (Cal/Val) activities of current and planned NASA Earth remote sensing missions is expected. Certain technology heritage and key building blocks at high Technology Readiness Levels (TRLs) (6-7) through prior AIST support exist. However, with the inclusion of these newly proposed concepts entry level TRLs are ranked between 2-3 with an expected exit TRL of 4-5 after two-years (starting September 2017 and ending September 2019).

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Massachusetts Institute of Technology(MIT)	Lead Organization	Academia	Cambridge, Massachusetts

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Organizational Responsibility

Responsible Mission Directorate:

Science Mission Directorate (SMD)

Lead Organization:

Massachusetts Institute of Technology (MIT)

Responsible Program:

Advanced Information Systems Technology

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Primary U.S. Work Locations	
California	Massachusetts
Washington	

Project Management

Program Director:

Pamela S Millar

Program Manager:

Jacqueline J Le Moigne

Principal Investigator:

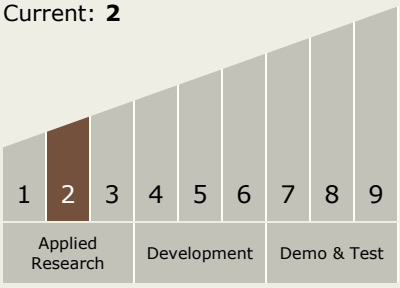
Dara Entekhabi

Co-Investigators:

Veronica Anne Morris
Agnelo Rocha Da Silva
Mahta Moghaddam
Ruzbeh Akbar

Technology Maturity (TRL)

Start: **2**
Current: **2**



Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.3 In-Situ Instruments and Sensors
    - TX08.3.4 Environment Sensors

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Target Destination

Earth